

FLA COE
FLB COE
FLD Conventional
Business Class
FLC 112 Conventional

> Century Class Conventional
> Argosy COE
Cargo
> Columbia
> 122SD and Coronado

> Business Class M2
> Cascadia
> 108SD/114SD
> New Cascadia

**Freightliner
Service Bulletin**

General Information

For information regarding health risks from flood water go to: <https://www.cdc.gov/healthywater/emergency/extreme-weather/floods-standingwater.html>

The following information provides repair guidelines for vehicles that have sustained flood damage.

Chassis Fuel System

1. Check the entire fuel system from the fuel tank(s) to the engine.
2. Drain one quart of fuel into a suitable container from the fuel lines at the engine connection. Also drain one quart of fuel from the fuel tank(s).
3. Check for water in the fuel.
 - If water is in the fuel, follow the fuel tank flushing and fuel line cleaning procedure in **Group 47** of the applicable vehicle workshop manual.
 - If water is not in the fuel, tighten the drain plug and go to the directions listed under 'Air System.'
4. Inspect the fuel tank breathers. Clean and replace if necessary.
5. Replace the engine fuel filters. For instructions, see the engine manual.
6. Make certain that there is no water left inside the fuel tank(s). Fill the fuel tanks with clean fuel.
7. Prime the fuel system with clean fuel.

Air System

IMPORTANT: If any pneumatic air brake valves have been submerged in salt (sea) water replace the air brake valves with new components.

1. Remove the air filter.
2. Check for water entering the air filter housing. Clean if necessary.
3. Install a new air filter.
4. Disconnect the air compressor intake and discharge lines and clear off any water and debris.

NOTE: Remove the air compressor to perform the following step.

5. Remove the cover and pistons on the top of the air compressor, then use a borescope to determine if there is any water in the air compressor. If water is found, inspect the air compressor cylinder and piston rings for rust. If rust is found, replace with a new or remanufactured air compressor.
6. Drain all of the water from the air tanks and leave the drain valves open. Start the engine and observe the drain valves, verifying that no water (mist) comes out.
7. Close the drain valves but leave the engine and air compressor running until the air system is full. Leave the engine running throughout the following steps, as they will use up air pressure and require system replenishment.
8. If a trailer is attached, push in the trailer air supply valve (red button). Depress and release the brake pedal several times to fill and exhaust the brake system lines and valves. Note when only air is exhausting (no moisture is left in the air system). This may require pressing the brake pedal 20 to 30 or more times.

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If a trailer is not attached, push in the trailer air supply valve (red button) with glad-hands open and hold it down while depressing the service brake pedal to blow out any water in the trailer hoses. Depress the brake pedal repeatedly to clean out the brake lines and valves.

If the vehicle does not have a trailer air supply valve (red button) on the dash (no towing), depress the brake pedal repeatedly to clean out the brake lines and valves.

9. Ensure that all of the service brakes are operating correctly by measuring the stroke of each brake chamber before and after applying 80 psi (552 kPa). The strokes should range from 1.25 to 2.50 inches (3.1 to 6.3 cm) depending on slack adjustment and chamber size.
10. Cycle the yellow parking brake knob in and out several times to blow out any water in the parking brake lines and valves until there is no more water exhausted at the parking brake valve.

IMPORTANT: Before cycling any driver-controlled air accessory dash valves, pull off the yellow air line at the cab front wall and let any water drain out of the line. Replace the yellow air line. The dash valves exhaust air (and water) in the dash but too much water can damage nearby electrical components.

11. Cycle each dash-controlled air accessory device on and off until there is no more water exhausted. Some examples of dash-controlled air accessory devices are fifth wheel slide, king pin release, suspension dump, power takeoff (PTO,) lift axle, inter-axle lock, driver-controlled differential lock (DCDL), seats, and horn.
12. Drive the vehicle slowly in a parking lot while operating the transmission and clutch to blow out those air lines. Test the brakes to ensure they operate correctly.

Cooling System

NOTICE

Use caution when pressure washing the cooling fins to prevent bending the fins.

1. Pressure wash the radiator external cooling fins.
2. Using an approved container, drain the cooling system.
3. Remove the coolant filter, if so equipped, and turn the coolant filter valve to the off position.
4. Inspect the coolant hoses and belts for damage. If any damage is found, replace components as necessary.
5. Fill the cooling system with water and 2 ounces (57 g) of Cascade® Complete® with Dawn® gel dishwasher detergent. See [Fig. 1](#).

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Fig. 1, Cascade Complete with Dawn Gel Dishwasher Detergent

6. Inspect the air operated fan and hub assembly. If possible, activate and deactivate the fan switch to make sure the fan engages and disengages. If the fan does not operate correctly, a potential overheating of the engine will result in damage.
7. Start the vehicle and let it idle for 30 minutes. Shut down the vehicle, drain the cooling system and fill it with clean water. Start the vehicle and let it idle at operating temperature for a few minutes. Shut down the vehicle, drain the cooling system and fill it with clean water one last time. Start the vehicle and let it idle at operating temperature for a few minutes, then drain. Finally, fill the cooling system with approved coolant, additives, and filter, if so equipped. Bleed air out of the system. For instructions, see **Group 20** of the applicable vehicle workshop manual.
8. Inspect the radiator cap for damage and pressure test the cap. If the cap is damaged or does not release pressure, replace the cap.
9. Open the coolant filter valve, if so equipped, to the on position.

Electrical System

1. Charge the batteries if necessary, then test the batteries with an approved tester. If the test results indicate the batteries are good, return them to service. Test the rest of the vehicle electronics, wiring and relays.

WARNING

Wear a face shield or safety goggles when using compressed air to avoid injury from flying debris. Do not exceed 40 psi (276 kPa) air pressure.

2. Disconnect all electrical connectors, dry them with compressed air and clean the connectors with an electrical cleaner. Inspect for corrosion and replace connectors, pins, or electrical harnesses as needed.

NOTE: Daimler Trucks North America (DTNA) does not recommend using dielectric grease in electrical connectors.

3. If any electrical computer or module has been submerged, it should be replaced.

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4. Using compressed air, dry the starter and alternator. It is recommended to test the starter and alternator off of the vehicle if possible.
5. After drying and cleaning, connect an RP1210B compliant vehicle diagnostic adaptor into a laptop and the vehicle diagnostic port, and use the service tool to retrieve or clear any codes.

Engine

Reference the engine manufacturer's manual for pistons and cylinder kits.

Steering System

1. Perform a visual inspection of the steering system. If there is any indication the steering system is compromised, perform the following steps to return it to service.
2. Disassemble the steering system, draining oil and water from the hoses, reservoir, pump, and gear.
3. Flush the reservoir and hoses.
4. Check for water intrusion at the output shaft seal. If water intrusion is found, grease the zerk fitting. Continue to add grease until clean grease comes out of the shaft seal.
5. Check for water intrusion at the input shaft seal. Remove the U-joint, lift off the seal and inspect the grease. If the grease is discolored from water, wipe out the old grease and replace it with clean grease.

NOTE: It is not possible to determine if the vent seal has leaked without removing the steering gear, then removing the side-cover and sector shaft assembly, and the sector from the side-cover, before inspecting the grease in the bearing.

6. Check for water intrusion past the vent seal in the side-cover.
7. Assemble the steering system and fill it with new steering fluid.
8. Raise the front axle off the ground.
9. Start the vehicle and steer to either axle stop to bleed air from the steering gear.
10. Shut down the vehicle and drain the steering fluid.
11. Fill the steering system a second time with new steering fluid, then start the vehicle and steer to either axle stop to bleed air from the steering gear.

Rear Axles

New Final Drive

1. Drain the housing. Remove and replace the carrier if it has been fully submerged. If the carrier has only been partially submerged, replace the Automated Lube Management System and inspect for corrosion. Replace the carrier if corrosion is found.
2. Clean the housing and remove all debris and water.
3. Remove the wheel ends and check for corrosion on the spindle. If corrosion is found on the spindle, replace with a new housing.
4. Check to make sure the magnets are still attached.
5. All rubber components and seals must be replaced.

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Model 2, 4, and 6 Classic Carriers

1. Drain the housing. Remove and rebuild the carrier. Inspect the carrier and replace any corroded components.
2. Clean the housing and remove all debris and water.
3. Remove the wheel ends and check for corrosion on the spindle. If corrosion is found on the spindle, replace with a new housing.
4. Check to make sure the magnets are still attached.
5. All rubber components and seals must be replaced.

Front Axles

1. Inspect the hubs for water intrusion.
2. If there is water in the hubs, remove and inspect the spindle and replace if corrosion is found on the bearing surfaces.
3. Thoroughly clean the hub and bearings.
4. Remove and replace the tie-rod assemblies.
5. Grease all of the zerk fittings to push out any water. Continue to add grease until clean grease comes out.
6. Replace all of the seals and gaskets.

Transmissions

DT12

1. Drain the transmission fluid to see if water has entered the transmission. If water has entered the transmission, remove and replace the transmission with a new or remanufactured transmission.
2. Using new fluid, fill the transmission.
3. Replace the transmission shift controller assembly if the water level has been above the height of the air exhaust vents on the bottom of the controller.
4. The clutch and clutch actuator are not designed to be submerged in water. Replace both components if they have been submerged in water.
5. Drive the vehicle to make sure the transmission operates correctly.

Automated Manual Transmissions—non DT12

1. Replace the transmission control unit (TCU) if it has been submerged in water.



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2. Disconnect all electrical connectors, dry them with compressed air and clean the connectors with an electrical cleaner. Inspect for corrosion and replace connectors, pins, or electrical harnesses as needed.

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3. Drain the transmission fluid, fill with new fluid and flush as follows.
 - 3.1 Start the vehicle and let the engine idle for 3 minutes to circulate the transmission fluid through the transmission and transmission oil cooler.
 - 3.2 Drain the transmission fluid, fill with new fluid, and repeat the previous step.
 - 3.3 Drain the transmission fluid and fill with clean fluid. For instructions, see the transmission manual.
4. Drive the vehicle to make sure the transmission operates correctly.

Manual Transmissions

1. Drain the transmission fluid, fill with new fluid and flush as follows.
 - 1.1 Start the vehicle and let the engine idle for 3 minutes to circulate the transmission fluid through the transmission and transmission oil cooler.
 - 1.2 Drain the transmission fluid, fill with new fluid, and repeat the previous step.
 - 1.3 Drain the transmission fluid and fill with clean fluid. For instructions, see the transmission manual.
2. Drive the vehicle to make sure the transmission operates correctly.

Allison Automatic Transmission

1. Drain the transmission fluid to see if water has entered the transmission. If water has entered the transmission, remove and replace the transmission with a new or remanufactured transmission.
2. Flush the transmission cooler to clear all contaminated oil from the cooler.
3. Using new fluid, fill the transmission.
4. Replace the transmission control unit (TCU) if it has been submerged in water.
5. Drive the vehicle to make sure the transmission operates correctly.

HVAC

1. Replace all HVAC filters if they have been submerged in water.

 **WARNING**

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2. Disconnect all electrical connectors, dry them with compressed air and clean the connectors with an electrical cleaner. Inspect for corrosion and replace connectors, pins, or electrical harnesses as needed.
3. Check the HVAC system for correct operation.

Cab Interior

1. Remove the carpet to clean and properly dry the interior of the vehicle. Dry any remaining water before installing new carpet to prevent metal corrosion.
2. Clean or replace the seats as needed.

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Warranty

This is an informational bulletin only. Warranty does not apply.